would be interesting to know the changes which take place in the subsequent growth of the spore. A full historical account precedes the paper. Corrosive sublimate and Gram's iodine solution are recommended for killing, while a variety of aniline dyes were chiefly used for staining. Sections were also made. The species studied are given as *Saccharomyces cerevisiæ*, *S. ludwigii*, *S. pastorianus*, *S. mycodenua*, and a red yeast.

H. M. R.

Botanical Notes. — Skeletonizing leaves, always an interesting occupation, and one of some scientific utility, is described in the number of *Science* for December 30 by A. F. Woods, who finds minute crustacea belonging to the genus Cypridopsis to be the active agent. So long as any parenchyma is present, they appear not to attack even the finer vascular bundles.

Under the heading "Foreign Weeds and their Extermination," Professor Pammel contributes an interesting little article to *The Gentleman Farmer Magazine* for November.

The forage plants and forage resources of the Gulf States are reported on by Professor Tracy in *Bulletin No. 15* of the Division of Agrostology of the United States Department of Agriculture.

Forestry in relation to physical geography and engineering is the subject of an article by John Gifford in the *Journal of the Franklin Institute* of July last.

"Check-List of the Forest Trees of the United States, their Names and Ranges," is the title of *Bulletin No. 17* of the Division of Forestry of the United States Department of Agriculture, by George B. Sudworth. It is stated to be in the main a condensed reproduction of *Bulletin No. 14* of the same division, like which it exemplifies the "Neo-American" views in nomenclature, and it is intended to be helpful in bringing about a more uniform and stable use of names by lumbermen, nurserymen, and others interested in forest trees.

The determination of woods by characters drawn from their structure, to which some attention has been given by engineers of late, forms the subject of an article by Charles Bommer, illustrated by twelve enlarged phototypes, showing the cross-section of as many woods, in the *Bulletin of the Société centrale Forestière* of Belgium for December.

Prof. T. H. McBride has published in separate form an instructive address on public parks for Iowa towns, which may well be read by the inhabitants of towns outside that state.

A provisional enumeration of the species of Cerastium is published by F. N. Williams in the *Bulletin de l'Herbier Boissier* of November 15.

The early botanical views of *Prunus domestica* are discussed by Prof. F. A. Waugh in the *Botanical Gazette* for December.

Whipplea Utahensis Watson is made the type of a new genus, Fendlerella, by A. A. Heller in the *Bulletin of the Torrey Botanical Club* for December, in which number he also makes of *Actinella Bigelovii* Gray the type of a new genus, Macdougalia.

The cockle-bur, *Xanthium strumarium*, which has been introduced into Queensland, is stated by F. M. Bailey, in the *Queensland Agricultural Journal* for November, to be poisonous to cattle, the effect being "to paralyze the heart, induce torpor, and cause death without pain or struggle."

The *Revue Horticole* of December 1 contains good figures of several of the forms into which *Dodecatheon Meadia* has passed in cultivation.

Fritillaria pluriflora of California is well figured in the *Botanical Magazine* for December.

Under the title *Mycological Notes*, Mr. C. G. Lloyd, of Cincinnati, began in November the issue of occasional bulletins on the fungi in his collection.

Sydow's *Deutscher Botaniker-Kalender für 1899* (Berlin, Borntraeger), is a handy little pocketbook which, among other things, tells under each day of some botanist who was born or died on that day of the month, gives a list of exsiccatæ of cryptogams, lists of botanic gardens and natural history museums of the world and of their principal plant collections, and the now familiar nomenclature rules of the Botanic Garden of Berlin.

The Plant World for December maintains the happy character of the journal for short botanical articles of general interest.

Vol. II of the *Annuaire du Conservatoire & du Jardin Botaniques de Genève*, in addition to a report on the establishment and lists of seeds collected, contains an important paper on the geographical limitation of species by the late Alphonse de Candolle, and systematic papers by Briquet, Lindau, Hochreutiner, and Casimir de Candolle.

The fourteenth volume of the *Acta Societatis pro Fauna et Flora Fennica* is entirely botanical: Wainio, *Monographia Cladoniarum Uni-*

versalis, III; Elfving, *Anteckningar om Kulturväxterna i Finland;* Mela, *Nymphæa Fennica, eine neue europäische Seerose.*

The *Ottawa Naturalist* for December contains No. 12 of the "Contributions to Canadian Botany," by James M. Macoun.

"Camping in Florida," a little article by Professor Hitchcock from *The Industrialist* (of the Kansas State Agricultural College) for November, tells how he contrived a wheelbarrow with pneumatic tire and ball bearings, on which he trundled the necessary outfit of a botanist 242 miles in 24 consecutive days, his expenses averaging 30 cents a day.

No. 15 of Dr. Small's "Studies in the Botany of the Southeastern United States," in the December number of the *Bulletin of the Torrey Botanical Club*, contains a rich grist of new species, especially in the genera Smilax, Oxalis, and Euphorbia.

The October number of *Monatsschrift für Kakteenkunde* contains a short note by Purpus on his season's botanizing in our western district.

Under the title "New Species of Plants from Mexico," Mr. Brandegee publishes several new binomials in *Erythea* for January.

PALEONTOLOGY.

Cretaceous Foraminifera of New Jersey.[1] — American literature is conspicuously deficient in works relating to the fossil Foraminifera, although in Europe the class has received the attention of some of the leading paleontologists, and their monographs and special reports cover the investigations of many years.

The present memoir includes the cretaceous Foraminifera from the marl beds of New Jersey, embracing the Monmouth, Rancocas, and Manasquan formations. The greatest number of species (seventy-nine) occurs in a limestone layer in the Rancocas formation. Four species are common to all four marl beds. Altogether there are one hundred and fifteen species now known from the New Jersey Cretaceans. The plates give unusually good representations of the form and structure of about thirty species of special interest. C. E. B.

[1] Bragg, R. M., Jr. The Cretaceous Foraminifera of New Jersey, *Bull. U. S. Geol. Surv., No. 88.* 8vo. 6 plates, 89 pp. Washington, 1898.